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ABSTRACT

Preschoolers' ability to understand grammatical relations in passives and to generalize was studied using animate referents. Three- to five-year-old children were taught to produce passive sentence descriptions of events in which animacy of the actor and acted-on object were varied. After pretesting to determine passive sentence comprehension, the experimenter used toys to enact 32 actor-plus-action-plus-object events, and described 20 events in passive sentence form. Then the child was asked to describe the event without benefit of the experimenter's example. Three types of toys were used to enact the events: (1) animate (e.g., girl, horse); (2) dynamic inanimate (e.g., train, ball); and (3) static inanimate (e.g., house, piano). Training conditions were as follows: animate actors acted on dynamic inanimate objects; dynamic inanimate actors acted on animate objects; and the acted-on objects were static inanimate things. It was found that when the referents in the event coincided with particular word order propensities, production preceded comprehension. Children who were unaware that the grammatical subject and object in passives correspond to the underlying object and subject still produced sentences which observed these relations. Apparently, a linguistic rule is not always the base for correct word order. It is suggested that the discrimination between animate and inanimate actors that emerged may not involve the entity's capacity for independent action, but may involve the child's naming a referent in preverbal or in postverbal position according to the referent's relative salience. (SW)

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The Role of Animate Referents in New Syntax

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When children begin to say more than one word at a time, what accounts for their choice of word order? The matrix for early word order has been debated from the perspectives of semantics and syntactics. The latter hold that word order, even in two- and three-word utterances, is based on linguistic rules (Bloom, 1970; Bloom, Lightbown & Hood, 1975). This view has been countered by arguments that early utterances directly express semantic relations (Schlesinger, 1974; Bowerman, 1975).

Distributional analysis of early phrases has perpetuated the dispute. The two positions would be clarified by evidence that children can produce sentences which observe customary grammatical relations without such knowledge. Admittedly, this would be difficult to demonstrate in very young children. However, the same principle applies to preschoolers. If preschool children produced syntactically complex sentences without "knowing" the form they used, then there would be grounds for questioning whether standard word order in early phrases must be based on linguistic rules.

Children aged three to five years were taught to produce passive sentence descriptions of events in which animacy of the actor and acted-on object were varied. It was expected that animate acted-on objects and inanimate actors might lead to their using word order correctly in passives (as this conforms to propensities in elicited passives - Horgan, 1976). Given that children produced sentences which observed the passive sentence relation between the surface subject and logical object and the surface object and logical subject, would they generalize to events that had other types of referents as acted-on objects? This would demonstrate an understanding of grammatical relations in passives. However, if children were unable to generalize, this would suggest they had used animacy differences as base for a production strategy.

Experiment 1

Method

Children were pretested for passive sentence comprehension. Those with accuracy exceeding 74% were excluded. In the training phase, the experimenter used toys to enact 3? actor + action + object

events. She described 20 events in passive sentence form. Then the child imitated her sentence. Twelve events were production probes. The child was asked to describe the event in the "new way" without benefit of an example. Probes were interspersed among imitation items in predetermined random order.

Probe and imitation items had the same verbs. Each verb occurred in imitation before occurring in a probe. Before a probe event, the child was told the name of the action, for example, "Now one toy will push another toy". These procedures were intended to reduce response omissions. Usually training took two sessions, but some children required as many as four sessions.

Three types of toys were used to enact the events: (a) Animate (e.g. girl, horse, man, tiger), (b) Dynamic Inanimate (e.g. train, airplane, ball), and (c) Static Inanimate (e.g. house, kettle, piano). There were three training conditions. In one condition, animate actors acted on dynamic inanimate objects (A + D group). For example, a bear chased a truck, and the experimenter said, "The truck is chased by the bear". Or a tiger pushed a car, and the experimenter said, "The car is pushed by the tiger".

For a second group, dynamic inanimate actors acted on animate objects (D + A group). For example, a truck chased a bear; a car pushed a tiger. The corresponding sentences were: "The bear is chased by the truck"; "The tiger is pushed by the car".

For a third group, the acted-on objects were static inanimate things. Ten imitation and six probe events had animate actors (e.g. a girl pushed a chair). The remaining 16 events had dynamic inanimate actors (e.g. a car bumped into a house). The condition is labelled "A,D + S".

One to two days after training, generalization was tested by depicted events. These had animate actors and three types of acted-on objects; (a) Animate, (b) Dynamic Inanimate, and (c) Static Inanimate. For example, a lion washed a horse, a lion rolled a wheel, a lion washed a window. There were four examples of each type.

The 27 subjects came from two university day care centers and ranged in age from 3.0 to 4.9 years. They were randomly assigned to condition, nine to each group. Mean ages ranged from 3.8 to 3.9 years, and mean pretest comprehension from 39% to 46% accuracy.

Results and Discussion

Production. Mean active and passive sentences elicited by probes is shown in Table 1. In view of the children's age, their responses were scored as passives if they included the preposition and either the auxiliary or marker [ed]. Included among actives are responses which did not meet these criteria. To clarify presentation, passives with the acted-on object in surface subject position (and the actor in surface object position) are called "object-first" passives. "Agent-first" passives reverse these relations (the surface subject and object respectively name the situational actor and object).

Table 1

Mean Number Sentence Types Produced to Probes (MAX=12)

	Conditions			
Sentence Type	D + A	A + D	A,D + S	Mean
Passive				
Object-First	5.0	1.2	3.0	3.1
Agent-First	2.1	3.7	3.2	3.0
Active				
Agent-First	2.3	5.4	5.0	4.2
Object-First	0.2	0.1	0.1	0.1
Omissions or Unscoreable	2.4	1.6	0.6	1.6

Passive sentences by the inanimate actor (D + A) and the animate actor (A + D) groups usually had an animate referent in surface subject position and an inanimate referent in surface object position. However, the animate referent was the acted-on object in the D + A condition and the actor in the A + D condition. Thus, children in the D + A condition produced significantly more object- than agent-first passives ($F(1,24)=7.14$, $p<.02$). Those in the A + D condition showed the reverse pattern ($F(1,24)=4.70$, $p<.05$).

Children knew from the event which referent was actor and which was the object. So children's word order propensities in the D + A condition cannot be attributed to their assuming that the animate entity was the more probable actor (thereby naming it in preverbal position). Otherwise, they would have named the animate entity first in their active sentence descriptions.

There was no asymmetry in the mixed-animacy actor (A,D + S) condition. However, one child produced passives correctly very early in training (masking a group trend towards reversed passives). Also, animate and inanimate actors might have affected word order differently. So passives were reanalyzed separately for animate and inanimate actors (Table 2) with data for the child who consistently produced correct passives excluded.

Table 2

Percent Agent- and Object-First Passives to Animate and Inanimate Actors (A,D + S Group, $n=8$)

	Actor Type	
Sentence Type	Animate	Inanimate
Object-First	40%	37%
Agent-First	60%	63%

Inspection of Table 2 reveals that passives to animate and inanimate actors more usually were reversed than correct. In turn,

this implies that the D + A group may have named inanimate actors in postverbal position because the acted-on object was animate, and thereby preferred as a preverbal noun.

Generalization. Active sentences comprised 85% of scoreable responses, but were more usual for static inanimate than for animate or dynamic inanimate items ($F(2,48)=8.83$, $p<.01$). Conversely, passives were less frequent for static inanimate items ($F(2,48)=10.15$, $p<.01$). Inspection of Table 3 reveals that children trained with animate and dynamic inanimate referents (A + D and D + A groups) subsequently restricted their passives to the same referent types. They discriminated passive from active sentences in terms of their range of applicability.

Table 3

Mean Object- and Agent-First Passives Produced to Generalization Items

		Object Type			
Group	Sentence Type	Animate	Dynamic	Static	Sum
A,D+S	Object-First	0.8	1.0	0.4	2.2
	Agent-First	0.6	0.3	0.3	1.2
A + D	Object-First	0.6	0.3	0.0	0.9
	Agent-First	0.8	1.1	0.1	2.0
D + A	Object-First	0.3	0.3	0.0	0.6
	Agent-First	0.3	0.6	0.1	1.0
Mean	Object-First	0.6	0.5	0.1	1.2
	Agent-First	0.6	0.7	0.1	1.4

Three children in the A,D + S condition account for almost all passives to static inanimate items. Their hypotheses about word order differed. One child had acquired an object-first rule that allowed generalization to all types of items. A second child used passives correctly for inanimate objects, but reversed for animate objects. The third child usually reversed regardless of object type.

During training, the A + D and D + A groups had shown mainly AVD order in their passive sentences. Perhaps they had used an animacy strategy which superceded the referent's semantic role in the event. Use of the same approach for generalization would lead to reversed passives for inanimate objects (as the actor was animate) and inconsistent word order for animate objects. However, the A + D group usually reversed regardless of object type ($F(1,24)=4.83$, $p<.05$). Given that they generalized from training, then they must have named the actor first in both situations (perhaps because the actor was animate).

Children in the D + A condition had been trained with inanimate actors. They had responded to probes as if they were beginning to learn the structure of passives. However, on generalization, they behaved as if they had learned little, if anything, about the relation

between word order in passives and the referent's semantic role in the event. Their object-first passives to probes may have been incidental to their naming the animate referent in preverbal position and the inanimate referent in postverbal position.

Alternatively, perhaps animate acted-on objects help children learn word order in passives, but children trained with inanimate actors (D + A condition) were unable to generalize to animate actors. This possibility was tested in Experiment 2 by using animate actors and animate objects. Inanimate actors and animate objects were included in the expectation that these items would help children discover an object-first rule for the passive.

Experiment 2

Method

For the mixed-animacy actor (A,D + A) group, 12 imitation and 6 probe events had inanimate actors and animate objects. These were obtained from the D + A condition (Experiment 1). The remaining 18 events had animate actors and animate objects. For example, a bear chased a tiger; a tiger pushed a girl. Otherwise, the procedure was identical to Experiment 1.

The subjects came from a day center which served a mainly West Indian population. As the children were less linguistically sophisticated than those in Experiment 1, a D + A (inanimate actor + animate object) condition was included as base for comparison with the A,D + A group. There were 10 children in the A,D + A group, aged 3.3 to 5.0 years (mean, 4.1). Their mean pretest comprehension was 47%. The D + A group comprised 9 children aged 2.9 to 5.0 years (mean, 4.0 years). Their mean pretest comprehension was 58%.

Results and Discussion

Mean sentence types produced to probes are in Table 4. The D + A group again produced more object- than agent-first passives ($F(1,17)=9.91$, $p<.01$). The preference for AVD order with animate objects and inanimate actors has generality across English-speaking children from different cultural backgrounds.

The D + A group also produced object-first passives reliably more often than the A,D + A group ($F(1,17)=17.25$, $p<.01$). The latter showed a trend towards reversed passives ($F(1,17)=2.56$, $p>.05$). Note that animate acted-on objects were used in both conditions. If animate acted-on objects sufficiently explained production of object-first passives in the D + A condition, then the A,D + A group should have shown the same tendencies. Instead, the results imply that the type of actor also influences children's word order preferences in passives. This is shown in Table 5, which summarizes the effect of the type of actor on word order in the A,D + A condition.

Table 4

Mean Number Sentence Types Produced to Probes (MAX=12)

	Condition		
Sentence Type	D + A	A,D + A	Mean
Passive			
Object-First	6.0	2.0	3.9
Agent-First	2.9	3.5	3.2
Active			
Agent-First	2.3	5.5	3.9
Object-First	0.1	0.5	0.3
Omissions or Unscoreable	0.7	0.5	0.6

Table 5

Percent Object- and Agent-First Passives to Animate and Inanimate Actors (A,D + A Group)

	Actor Type	
Sentence Type	Animate	Inanimate
Object-First	27%	45%
Agent-First	73%	55%

Children in the A,D + S condition differentiated between animate and inanimate actors in terms of their word order patterns. Animate actors were usually named first ($F(1,9)=37.56$, $p<.01$). There was no asymmetry for inanimate actors ($F(1,9)<1$). Perhaps the more usual AVD pattern for inanimate actors and animate objects did not not emerge because naming the actor first for animate instances generalized to inanimate instances. However, children still resisted naming inanimate actors first, perhaps because the preverbal noun would then name an inanimate entity (concomitant with an animate entity in postverbal position).

Generalization. Actives were less frequent than in Experiment 1, comprising 67% of scoreable responses. Again, actives were more usual for static inanimate than for animate or dynamic inanimate items. The reverse held for passives ($F(2,34)=9.56$, $p<.01$). Children trained to produce passives for particular types of referents subsequently restrict the form to instances of the same categories. They treat inanimate things differently according to whether or not the entity in question is mobile.

The mean number of passives to generalization items is shown in Table 6. The D + A group now produced significantly more agent- than object-first passives ($F(1,17)=6.87$, $p<.05$). Had they arrived at the notion that passives are restricted to inanimate actors, then presumably, they would have used actives for animate actors. They

produced passives to animate actors, but named the actor first.

Table 6

Mean Object- and Agent-First Passives Produced to Generalization Items

Group	Sentence Type	Object Type			
		Animate	Dynamic	Static	Sum
D + A	Object-First	0.4	0.1	0.0	0.5
	Agent-First	1.6	1.8	0.7	4.1
A,D + A	Object-First	1.3	0.7	0.5	2.5
	Agent-First	0.1	0.5	0.2	0.8
Mean	Object-First	0.9	0.4	0.2	1.5
	Agent-First	0.8	1.1	0.5	2.4

Also contrasting to their pattern for probes, the A,D + A group now showed a trend towards more object- than agent-first passives ($F(1,17)=1.86$, $p>.05$). The outcomes for this condition are clearer in relation to individual response patterns (Table 7)

Table 7

Individual Response Patterns to Generalization (A,D + A Condition)

Subject	Object-First Passive			Agent-First Passive		
	Animate	Dynamic	Static	Animate	Dynamic	Static
1	4	4	2	0	0	0
2	3	3	3	0	0	0
3	3	0	0	1	2	2
4	1	0	0	0	2	0
5	2	0	0	0	0	0

Table 7 shows data for children who produced at least two passives. Ss 1 and 2 produced only object-first passives. Neither had done so for probes. The remaining children restricted their object-first passives to animate items. Perhaps, they were arriving at an object-first rule that was restricted to animate acted-on things.

Summary and Conclusions

When the referents in the event coincided with particular word order propensities, production preceded comprehension. Children who were unaware that the grammatical subject and object in passives correspond to the underlying object and subject still produced

sentences which observed these relations. Apparently, a linguistic rule is not always the base for correct word order.

Preschool children treated animate and inanimate actors differently in terms of word order in their passives. Actually, animate actors are "agents" in the sense that they can willfully instigate action. Inanimate entities, such as vehicles, are "movers"; they move as the result of some external force. However, there is evidence that children do not make this distinction until after the preschool years (Laurendeau & Pinard, 1962).

The discrimination between animate and inanimate actors which emerged in the current study may not involve the entity's capacity for independent action at all. Instead, it may involve the child's naming a referent in pre- or in postverbal position according to the referent's relative salience. As inanimate actors move and produce sound, they are inherently attention-catching. But animate entities are not only interesting (perceptually salient). They also have interpersonal valence and so are more salient than inanimate things. The child's tendency to name an animate entity in preverbal position may actually be based on the child's "topicalizing" the more salient entity in the scene. Beginning speakers also tend to name animate entities in the surface subject position and inanimate things in the surface object position. Perhaps word order, when children first begin to say phrases, is actually directed by the relative saliencies of the referents.

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